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| 10/788,985 | 02/27/2004 | Michael Wimmer | FA1193USNA | 6843 |

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| EXAMINER |
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MAKI, STEVEN D

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| ART UNIT | PAPER NUMBER |
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1791

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12/13/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/788,985 | Applicant(s) WIMMER ET AL. | |
| | Examiner Steven D. Maki | Art Unit 1791 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-12 is/are pending in the application.
 4a) Of the above claim(s) 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

- 1) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 2) Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 is indefinite because the use of "consists" in claim 1 excludes the additional use of esters in claim 8. Claim 1 requires applying a coating layer of a composition consisting of ingredients A1, B1, C1, D1 and E1 or a composition consisting of A2, B2, C2, D2 and E2 onto the surface whereas claim 8 requires applying a coating layer of the composition 1 consisting of ingredients A1, B1, C1, D1 and E1 or a composition 2 consisting of A2, B2, C2, D2 and E2 and at least one of the ortho-titanic and -zirconic acid esters. In other words, the closed language ("consists") in claim 1 excludes (1) applying "composition 1 and at least one of the ortho-titanic and -zirconic acid esters" onto the surface wherein the at least one of the ortho-titanic and -zirconic acid esters has been added to the composition 1 and (2) (1) applying "composition 2 and at least one of the ortho-titanic and -zirconic acid esters" onto the surface wherein the at least one of the ortho-titanic and -zirconic acid esters has been added to the composition 2.

- 3) The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which

it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4) Claims 1 and 4-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 1, the subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (i.e. the new matter) is the use of first water and second water in composition 2. The original disclosure describes an aqueous composition comprising A) 100 parts by weight of one or more epoxy resins based on bisphenol-A-type, 100% of solids, B) 1 to 25 parts per weight of dicyandiamide, C) 0.1 to 10 parts per weight of additives, D) 0.1 to 120 parts per weight of flow agent and E) 50 to 200 parts per weight of water" and "... it is possible to produce an epoxy dispersion by mixing epoxy resin with water. The dicyandiamide and the further components are then added, for example with stirring, to produce a stable dispersion, optionally with input of heat and dispersing agents". In other words, the original disclosure supports (1) mixing A, B, C, D and E or (2) mixing A and E and then mixing B, C and D with the mixture of A and E. However, the original disclosure fails to reasonably convey adding 50 to 200 parts second water to a mixture of epoxy and first water. With respect to "said aqueous composition 2 has a solids content of

30% to 60%", this subject matter is independent of whether the water was added in one step or two steps.

5) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6) **Claims 1, 4-7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 723 (JP 11-162723) in view of Europe 059 (EP 717059) and optionally Young (US 5500462).**

Japan 723, directed to manufacturing a core for a motor or a transformer, discloses providing an AQUEOUS COMPOSITION comprising:

100 parts epoxy resin based on bisphenol-A-type,

1-40 parts hardening agent (based on 100 parts epoxy resin) comprising latent curing agent such as dicyandiamide and phenol resin wherein the amount of the latent curing agent such as dicyandiamide is 2-200 parts by weight (based on 100 parts phenol resin),

water;

additives such as silica, pigments, "membrane formation assistant" and "dispersibility improver";

coating steel sheets with the composition; drying the coated steel sheets by heating to 100-300 degrees C; assembling the dried coated sheets; and applying heat and pressure to the assembled dried coated sheets to cure the composition and thereby laminate / bond the sheets together. Japan 723 teaches baking (drying) the coated sheet at 100-300 degrees C such that the curing of the coating does not progress too far and then assembling the coated sheets and applying heat and pressure to cure the coating and bond the sheets together. See paragraphs 1, 17 and 34-28 of machine translation. Japan 723 teaches, for example, laminating by heating to 200 degrees C as shown in figure 2 and applying a pressure of 10 kgf/cm² (0.98 N/mm²). Japan 723 teaches that excellent bond strength at elevated temperature and good corrosion resistance is obtained. See abstract and machine translation. One of ordinary skill in the art would readily understand that "membrane formation assistant" in paragraph 32 of the machine translation of Japan 723 as meaning an agent / additive which facilitates formation of the coating on the sheet. Also, one of ordinary skill in the art would readily understand "dispersibility improver" in paragraph 32 of the machine translation of Japan 723 as meaning an agent / additive which improves dispersion in the aqueous coating composition.

As to **part A1 of claim 1**, Japan 723 teaches using 100 parts epoxy resin.

As to **part B1 of claim 1**, it would have been obvious to use 1 to 25 parts dicyandiamide in Japan 723's composition in view of Japan 723's teaching to use 1-40 parts hardening agent (based on 100 parts epoxy resin) comprising latent curing agent

such as dicyandiamide and phenol resin wherein the amount of the latent curing agent such as dicyandiamide is 2-200 parts by weight (based on 100 parts phenol resin).

As to **part C1 of claim 1**, it would have been obvious to use 0.1 to 10 parts additives wherein *the additives comprise phenol resin* in view of Japan 723's teaching to use 1-40 parts hardening agent (based on 100 parts epoxy resin) comprising latent curing agent such as dicyandiamide and *phenol resin* wherein the amount of the latent curing agent such as dicyandiamide is 2-200 parts by weight (based on 100 parts phenol resin). In claim 1, "additives" in claim 1 is sufficiently broad to read on phenol resin. It is noted that that the original specification fails to contain a special definition of additives that excludes phenol resin. It is further noted that the specification describes "additives as component C), such as for example ... catalysts". In view of this description, the term "additives" must be broadly interpreted. The term "additives" is properly and reasonably interpreted as reading on phenol resin.

As to **part D1 of claim 1**, it would have been obvious to one of ordinary skill in the art to provide Japan 723's composition such that it comprises 0.1-120 parts at least one organic solvent as flow agent since (1) Japan 723, directed to the epoxy art, teaches that the aqueous composition containing epoxy resin may contain "membrane formation assistant" and (2) Europe 059, also directed to the epoxy art, suggests using solvents to aid in coalescence of the ingredients for optimum film formation and identifies particularly useful solvents as being lower molecular weight glycol ethers such as diethylene glycol monobutylether (page 7 lines 28-39). Hence, Japan 723 discloses coating a steel sheet with a composition comprising epoxy and hardening agent to form

a film on the steel sheet. Japan 723 is considered to disclose using an "agent" with the epoxy and curing agent to assist formation of the film coated on the steel sheet. Japan 723 is silent as to the composition of this agent. However, Europe 059 suggests assisting formation of a film during a coating step by including an "agent" such as solvent (e.g. diethylene glycol monobutyl ether) with the epoxy resin and curing agent. In view of Japan 723's teaching to coat a steel sheet with a composition comprising epoxy and hardening agent to form a film on the steel sheet and Japan 723's recommendation in paragraph 32 to additionally use a "membrane formation assistant" (film forming aid), one of ordinary skill in the would look to the epoxy art (e.g. Europe 059) for suitable film forming aids (e.g. solvent) - only the expected results (improved film formation) being obtained.

As to **part E1 of claim 1**, the claimed amount of 50-200 parts water would have been obvious and could have been determined without undue experimentation in view of (1) Japan 723's teaching to use water with the epoxy to form an aqueous composition that may for example be applied with a thickness of 1-12 micrometers using roll coat method, dip method or spray method and optionally (2) Young's suggestion to form a stable aqueous composition, which may be used in the manufacture of laminates, such that it comprises epoxy resin, dicyanamide, and water with a 30-80% solids content and so that a film of the aqueous composition may be cast.

The use of "consists" fails to require a different composition than that suggested by the applied prior art. In particular, the use of "consists" in claim 1 fails to exclude the use of phenol resin as additional curing agent because

"additives" in claim 1 is sufficiently broad to read on phenol resin. It is noted that that the original specification fails to contain a special definition of "additives" that excludes phenol resin. It is further noted that the specification describes "additives as component C), such as for example ... catalysts". In view of this description, the term "additives" must be broadly interpreted. The term "additives" is properly and reasonably interpreted as reading on phenol resin. **As a related matter, claim 1 fails to require either explicitly or inherently a polyaddition reaction because claim 1 fails to require using dicyandiamide as the only curing agent.**

As claim 4, the claimed epoxy resin content of 40-70 wt% / solids content of 30-60% would have been obvious and could have been determined without undue experimentation in view of (1) Japan 723's teaching to use water with the epoxy to form an aqueous composition that may for example be applied with a thickness of 1-12 micrometers using roll coat method, dip method or spray method and optionally (2) Young's suggestion to form a stable aqueous composition, which may be used in the manufacture of laminates, such that it comprises epoxy resin, dicyanamide, and water with a 30-80% solids content and so that a film of the aqueous composition may be cast.

As to claim 5, the claimed number average molar mass of 700-5000 and epoxy equivalent weight of 400-6000 would have been obvious in view of (1) Japan 723's teaching to use epoxy resin in the aqueous composition for laminating steel sheets for a motor / transformer and (2) Young et al's suggestion to use epoxy resin having a molecular weight of 200-6000 and an epoxide equivalent of for example 525-550.

As to claim 6, Young suggests using micronized dicyandiamide having a particle size of less than 5 microns.

As to claim 7, Europe 059 suggests diethylene glycol monobutyl ether.

As to claim 9, it would have been obvious to apply Japan 723's composition on unpretreated and uncoated electric steel sheet as a one layer coating with a thickness of 3-8 microns since Japan 723 suggests applying the composition on a steel sheet (paragraph 17 of machine translation) at a thickness of 1-12 microns (paragraph 33 of machine translation).

As to claim 10, Japan 723 teaches drying at 100-300 degrees C such as 130-230 degrees C.

As to claim 11, Japan 723 teaches laminating by for example heating to 200 degrees C and applying a pressure of about 1 N/mm².

7) Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 723 in view of Europe 059 and optionally Young as applied above and further in view of Stark (US 4307212) or Kohn et al (US 2962410).

As to claim 8, it would have been obvious to one of ordinary skill in the art to additionally use an organo-metallic compound as claimed in view of either (1) Stark's suggestion to add an ortho-titanic ester such as tetraisopropyl titanate to a curable epoxy resin composition to initiate cure or (2) Kohn's suggestion to add an ortho-titanic ester such as tetraisopropyl titanate to a curable epoxy resin composition to provide better temperature stability.

Remarks

8) Applicant's arguments filed 9-20-07 have been fully considered but they are not persuasive.

Applicant argues that "additives" excludes "phenol resins". Examiner disagrees and maintains his position that "additives" in claim 1 is sufficiently broad to read on phenol resin. It is noted that applicant agrees "... the Specification of the subject patent application does not provide a definition of the term "additives" (page 9 of response filed 9-20-07).

Applicant argues that Ullmann (attached to the response filed 9-20-07), which describes paint additives, is evidence that phenol resin is not an additive. Applicant argues that additives are not resins. Applicant also argues that, according to the pertinent art, additives are not understood to function as curing agents. These arguments are not persuasive. The original specification fails to direct one of ordinary skill in the art to look to Ullmann and conclude that "additives" as used in the specification is limited to the specific narrow meaning argued by applicant. Applicant's argument that additives are not resins and additives are not understood to function as curing agents is rebutted by Gunasekaran et al (epoxy adhesive further including additive selected from group including "curing agents", abstract), Yamaji et al (additives such as curing agent, curing catalyst added to epoxy resin, col. 3 lines 51-63), Japan 927 (additives such as crosslinking agent (e.g. phenol resin), curing agent curing accelerator added to epoxy resin, abstract) and Japan 699 (epoxy resin composition comprising additives such as phenol resins). With respect to one of ordinary skill in the

epoxy art, the term "additives" is not limited to a single definition which requires the term "additive" to exclude phenol resin. This conclusion is consistent with and supported by the broad language used in the specification ("additives as component C), such as for example leveling agents, catalysts, pigments and slip additives" (emphasis added).

Applicant argues that any other curing agent is included in claim 1. Examiner disagrees. Claim 1 fails to require using dicyandiamide as the only curing agent.

Applicant's argument that the present invention does not use a polycondensation reaction mechanism is not commensurate in scope with the claims since none of the claims require a polycondensation reaction mechanism; it again being noted that "additives" in claim 1 fails to require the narrow meaning argued by applicant.

Applicant comments that examiner has argued that polyaddition reaction between the epoxy resin and dicyandiamide should be expressly required in claim 1. Applicant is incorrect. Examiner has not argued that polyaddition reaction between the epoxy resin and dicyandiamide should be expressly required in claim 1. Applicant is confusing patentability based on unclaimed subject matter with a requirement made by the examiner.

9) No claim is allowed.

10) **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven D. Maki
December 9, 2007


STEVEN D. MAKI
PRIMARY EXAMINER
12-10-07